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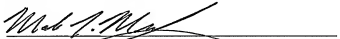
| 7,737,626 B2 | 10/581,410 | 06/15/2010 | 06/01/2006 | 3756 | 0553-0504 |

Respectfully Submitted,



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(12) **United States Patent**
**Kumaki et al.**

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(45) **Date of Patent: Jun. 15, 2010**

(54) **LIGHT EMITTING ELEMENT**

(75) Inventors: **Daisuke Kumaki**, Nigata (JP); **Satoshi Seo**, Kanagawa (JP); **Shunpei Yamazaki**, Tokyo (JP)

(73) Assignee: **Semiconductor Energy Laboratory Co., Ltd.** (JP)

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***H01J 1/62*** (2006.01)

(52) **U.S. Cl.** ..... **313/504**; 428/690

(58) **Field of Classification Search** ..... 313/504–512; 428/690

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,989,737 A 11/1999 Xie et al.

(Continued)

FOREIGN PATENT DOCUMENTS

EP 0 855 848 A2 7/1998

(Continued)

OTHER PUBLICATIONS

Tang, C.W. et al, "Organic Electroluminescent Diodes," Appl. Phys. Lett., vol. 51, No. 12, pp. 913-915, Sep. 21, 1987.

(Continued)

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(57) **ABSTRACT**

It is an object of the present invention to provide a light-emitting element having a structure in which the drive voltage is relatively low. Further, it is an object of the invention to provide a highly reliable light emitting device by alleviating the stress to the light emitting layer. Further, it is another object of the invention to provide a light emitting element having a structure in which increase in the drive voltage over time is small. It is an object of the present invention to provide a display device in which the drive voltage is low and increase in the drive voltage over time is small and which can withstand long-term use. In a light emitting element, a layer in contact with an electrode serves as a hole generating layer such as an organic compound layer containing a P-type semiconductor or an electron accepting material, a light emitting layer is provided between hole generating layers, an electron generating layer is formed between the hole generation layer on the cathode side and the light emitting layer.

**28 Claims, 19 Drawing Sheets**